Meeting the Mandate for Change in Marine Corps Logistics

Logistics modernization efforts in OIF III.

by BGen John E. Wissler & Col Peter F. Talleri

How did we get from the warfighter's logistics lament, "Where's my stuff?" in Operation IRAQI FREEDOM I (OIF I), to today's cry, "When am I going to get my stuff—'cause I see it sitting on the RUC [reporting unit code] line down there at TQ [Taqaddum, Iraq]!" For 18 months the synergistic effort between Operating Forces' logisticians and Headquarters Marine Corps (HQMC) logistics policy and programming experts has been working

> "The MAGTF is breaking new ground by being able to track everything right down to the last tactical mile. The process the Marine Corps is going through is coming together, and they are setting the stage for other services to follow suit."
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> —MG William E. Mortensen, Director for Logistics, J–4, U.S. Central Command

critical aspects of logistics modernization, focusing on command and control (C^2) and in-transit visibility (ITV). The necessities of a nearly immediate redeployment to Iraq for I Marine Expeditionary Force (I MEF) in 2004 versus a bit more time for II MEF to recock the force, led to separate but integrated approaches addressing the problems of logistics C^2 and ITV. The preparatory efforts of both MEFs during OIF II, implemented during the initial stages of OIF III, resulted in improved ITV down to the receiving unit and have provided a logistics common operating picture (LCOP) that could become the single COP across the Marine air-ground task force (MAGTF).

The Design for Change

I and II MEFs initially approached the logistics C^2 and information shortfalls identified in OIF I from different perspectives. I MEF's efforts focused on radio frequency identification (RFID) ITV implementation. II MEF's focus on organization, process, information technology (IT) enablers, communications architectures, and decisionable information laid the foundation for change across the spectrum of logistics C^2 and ITV. In the broadest sense, I and II MEFs used commercial off-the-shelf solutions to "bridge the gap" and provide improved logistics support to the warfighter on the battlefield in OIF II and OIF III. Simultaneously, they identified many of the capabilities needed in later stages of Global Combat Service Support-Marine Corps (GCSS-MC) development.

As identified above, the design for change addressed by II MEF logisticians in preparation for OIF III included five distinct but interrelated pillars: organization, process, IT systems, communications architecture, and information management tools. Each has contributed to rapid breakthroughs in logistics support from the strategic to the tactical level. Failing to implement any one pillar would have rendered the other breakthroughs virtually ineffective.

> "Confronted with a task, and having less information available than is needed to perform that task, an organization may react in either of two ways. One is to increase its information processing capacity, the other to design the organization, and indeed the task itself, in such a way as to enable it to operate on the basis of less information."
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> —Martin van Creveld, *Command in War*, 1985

The capabilities suite brought to the battlefield places technological and decision support enhancements (RFID, position location, logistics common operating software) over improved processes, such as the MAGTF distribution center, to bring unprecedented support to every MAGTF warfighter, whether in the Marine aircraft wing, Marine division, the force service support group (FSSG), or the MEF headquarters. Building on the exceptional achievements of 1st FSSG and their groundbreaking efforts in theater, II MEF (Forward) logisticians continue to raise the bar in global and cross-battlefield visibility and integration of information, resulting in greater MAGTF operational flexibility. We will briefly look at II MEF's logistics modernization efforts and the effectiveness they have achieved to date during OIF III.

Organization

Organizational change started with activating the Materiel Distribution Company within 2d Supply Battalion, 2d FSSG. This reorganization created a single process owner for distribution process control and visibility. It combines under one commander the Marines, capabilities, and functions that formerly resided in several different FSSG battalions and base organizations, allowing the logistician responsible for MEF requisitioning, be it the supply battalion commander in a garrison environment or the general support combat logistics regiment (CLR) commander when deployed, to exercise C^2 of the entire requisition-to-receipt process across the MAGTF. Central to the effectiveness of this reorganization in the deployed environment is the MAGTF distribution center (MDC).

Process

Process improvement in distribution efforts began long before the organizational refinements matured. I MEF began building single consignee pallets as early as fall 2003. This process change addressed a significant lesson learned during OIF I—don't handle cargo more than once. The building of "pure pallets" by unit allows forward logistics units

to quickly transship sustainment cargo and maintain tempo in the distribution process. Breaking down Marine Corps Service-level consolidated shipments and multipacked containers is a hard, manpower intensive operation. However, when required, it is essential to smooth distribution flow. It became an imperative that we have a single point of control for distribution to and across the battlefield. This imperative drove the creation of an MDC that provides visibility and action on centralization and minimization of this requirement in the area of responsibility.

In fall 2004, 2d FSSG's MDC was created within the supply battalion and subsequently deployed in February 2005 as part of CLR–25, the general support logistics organization in 2d FSSG (Forward). The MDC uses expeditors, distribution liaison cells, and "pallet riders" to create and maintain end-to-end visibility and control over the distribution process. Expeditors and liaison cells at all strategic-level hubs and operational-level nodes ensure that Marine Corps cargo is handled efficiently, prevent "frustrated cargo," and ensure that priority cargo—as determined by the MEF (forward) and major subordinate command commanders—moves as fast as possible through the distribution pipeline.

MDC personnel operate the shipping lines at CLR–25 and have distribution liaison cells that operate the shipping lines at the major forward operating bases (FOBs) supported by 2d FSSG (Forward). The pallet riders accompany sustainment convoys from the CLR to the combat logistics battalion (CLB), and from the CLB to the supported unit, ensuring accurate delivery and an automated receipt capability. Thus, the MDC is literally involved and integrated into the distribution process from "factory to foxhole."

IT Enhancements

Logisticians in I and II MEFs have leveraged existing IT systems to support process changes. Amending a phrase by Carl von Clausewitz, in order to better "work in a medium which [our] eyes cannot see," both I and II MEFs implemented several IT enablers that include RFID equipment, vehicle satellite tracking systems, and LCOP capabilities. Each enabler provides a unique aspect of ITV, and yet, each was individually insufficient to meet the needs for C^2 of logistics forces and ITV from factory to foxhole.

1st FSSG began placing active RFID tags on each of these single consignee pallets during OIF II. This practice allowed supported units to view the movement of their sustainment supplies as the RFID-tagged pure pallets passed active interrogators at various transportation nodes. The actual visibility of these pure pallets was performed through various nonsecure Internet protocol router network (NIPRNet) web sites, such as joint total asset visibility (JTAV) and ITV, among others. Based on I MEF's successes, II MEF adopted a similar process in the summer of 2004 and began to refine use of the various web-based systems, attempting to overcome the challenges reported by 1st FSSG during ongoing operations in Iraq.

With Marine Corps Operating Forces tagging pallet-level sustainment pushes with RFID, supported units can now view and track their sustainment requisitions from the moment they enter the distribution pipeline until arrival at their FOB. This type of "snapshot" visibility of sustainment is provided as supplies move through the distribution pipeline, passing fixed interrogators. This requires fixed interrogator infrastructure and achieves neither the timeliness nor the factory-to-foxhole visibility necessary on the modern battlefield. This challenging deficiency was overcome through the combination of "warehouse-to-warfighter" (W2W) software and vehicle satellite trackers. Incorporating these technologies into MDC processes and operations brings near-realtime visibility to tactical logistics operations. IT enhancements allow commanders to cover the last tactical mile (LTM).

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The final technology enablers provide logistics asset position location. I and II MEFs are using satellite tracking devices to provide near-realtime visibility of convoys. This data is fed into the joint-approved interim LCOP, known as the battle command sustainment support system (BCS^3). BCS^3 is a software program that takes feeds from many national-level logistics systems and servers (e.g., ITV server, JTAV, global transportation network, worldwide port system, joint operation planning and execution system, etc.) and displays that information on National Imagery and Mapping Agency mapping and imagery products.

BCS^3 produces actionable logistics information related to ITV, supply point status, logistics-related commander's critical information requirements, logistics course of action analysis, and projection of combat power, in addition to vital position location of distribution assets. By marrying the position location of BCS^3 to the content level detail of W2W, 2d FSSG has achieved factory-to-foxhole LTM visibility of the entire distribution process and can share that visibility across the MAGTF.

Communications Architecture

Uninterrupted access to all logistics information software systems and repositories became a "must-have" to support the organizational, process, and IT improvements necessary to provide distribution pipeline visibility across the MAGTF.

Based on 1st FSSG's identification of insufficient network bandwidth to process the volumes of data required for ITV and logistics C^2, II MEF started early to repair this deficiency for OIF III. In line with efforts at HQMC

to provide a GCSS communications capability, II MEF partnered with the U.S. Army's "connect the logistician" program office to provide sufficient bandwidth to enable large data transmissions vital to logistics operations.

The limited purchase and fielding of very small aperture terminals (VSATs) with combat service support automated information system interfaces (CAISIs) eliminated the communications deficiencies experienced in OIF II. While VSATs provide vital uninterrupted access to systems through high-speed satellite communications, CAISI provides an encrypted wireless environment that allows networks to be quickly set up, torn down, moved, and reestablished. In addition to simplicity, CAISI allows the logistician to operate with limited local infrastructure. The Marine Corps is currently fielding a potential alternative to VSAT, called the logistics support wide area network, that consists of Ku frequency band terminals that use orthogonal frequency division multiplexing instead of CAISI connectivity. This technology is being implemented across all MAGTF elements in Iraq and, if it proves comparable to the current VSAT connectivity, will replace VSAT in providing the NIPRNet connectivity vital to logistics operations.

Information Management: Producing Decisionable Information

Implementing the aforementioned changes provided MAGTF logisticians access to volumes of previously inaccessible data. To support rapid decisionmaking and effectively impact logistics decisions from the strategic to tactical level, an effective decision support tool was needed. 2d FSSG began the rudiments of this decision support tool during OIF I with development of the "big board"—a distribution capacity planning and execution tool that created a digital dashboard representation of information requiring the commander's attention.

After OIF I, with the help of the Deputy Commandant, Installations and Logistics, 2d FSSG expanded the initial decision support tool and developed the transportation capacity planning tool. In addition to the battalion-level big boards in use across 2d FSSG, an FSSG-level big board, called "Gryphon," provides a snapshot of vital logistics information to the FSSG commander, allowing distilled, decisionable information to enable rapid employment decisions that maintain warfighting tempo across the MAGTF. The big board technology covers information from distribution to maintenance readiness, to assessments, to ongoing and future force protection actions. It also has been adapted to support attached Army units in Iraq.

The Result: Improved Warfighting Readiness

These implemented logistics changes have had a significant impact on II MEF (Forward)'s MAGTF readiness support. Equally important, these changes have helped frame some essential capabilities when developing logistics modernization's GCSS-MC Blocks II and III. The following metrics have helped validate the value of logistics modernization investments:

- Ability to see and influence the distribution pipeline; average customer wait time has dropped from 28 to 16 days since 1 March.
- Visibility of what's on hand and what's needed has led to inventory reductions from $127 million (1 March) to $70 million. This reduction includes only those national stock numbers (NSNs) with established requisition objectives (ROs) and reorder points. Additional modernization efforts reduced the number of stocked NSNs while raising fill rate.
- Retrograde NSNs alone represented $17 million in savings.
- RO fill rate was raised from 77 percent prior to 12 March to 90 percent by early June. Overall fill rate was 53 percent prior to turnover of authority and has risen to 60 percent.

These metrics demonstrate improved warfighting effectiveness by reducing deadline rates and improving efficiency of inventory management. They also show that we can use current demand patterns to predict future usage. The ability for customers to have the same visibility as the FSSG through BCS^3 has drastically reduced reorders and multiple request submissions. It has also improved the Operating Forces' trust in the system as reflected in the due and status file reduction from more than 92,000 records in March to approximately 16,000 records in June.

System improvements mean more than time and dollar savings. Visibility allowed 2d FSSG to produce four critical tank engines for the 2d Marine Division in just 6 days; three engines were expedited through the system and arrived in Iraq within 3 days of requisition; a "frustrated" engine, identified by an RFID tag, was located in Balad, Iraq by the distribution liaison cell expeditor; and in just 6 days four tank engines were requisitioned, moved from the continental United States, delivered in Iraq, and distributed.

Summary

Organizational changes—combined with an integrated process, IT enablers that support the improved process, and an improved communications architecture all feeding decisionable information to the logistics commander—have brought about a sea change in logistics support since even the recent OIF I experiences. Harnessing across-the-board change to "see into the medium our eyes could not see" has allowed Marine Corps commanders and logisticians to take necessary risks—and win on the numerous battlefields of the global war on terror.

"A real knowledge of supply and movement factors must be the basis of every leader's plan; only then can he know how and when to take risks with those factors, and battles are won by taking risks."

—Napoleon

US MC

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